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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/682,636 | 10/01/2001 | Dale M. Brown | GLO 2 0066 | 3694 |

27885 7590 02/04/2003

FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP
1100 SUPERIOR AVENUE, SEVENTH FLOOR
CLEVELAND, OH 44114

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| EXAMINER |
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NGUYEN, TUNG X

| ART UNIT | PAPER NUMBER |
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2829

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/682,636 | BROWN ET AL. | |
| | Examiner Tung X Nguyen | Art Unit 2829 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 October 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-23 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

4) Interview Summary (PTO-413) Paper No(s). _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Objections

1. Claims 9, 17, 21 are objected to because of the following informalities: those subscripts in the formulas in claims 9, 17, 21 are missing. Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities: On page 3, paragraph 16, line 3, the subscripts in the formulas are missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faatz (u.s.p 4,816,691), in view of Moustakas (u.s.p 5,847, 397), and further in view of Bateman et al. (u.s.p 5,430,299), and Gross et al. (u.s.p 6,310,352).

As to claims 1, 10, 11, 18-20, 22, Faatz discloses in figure, a radiation detector comprising: a semiconductor device (9) producing an electric signal as a function of the amount of UV photons incident thereon (Col. 2, lines 6-15); Faatz was in silence about a wide bandgap semiconductor device. However, Moustakas (u.s.p 5,847,397) discloses

a wide bandgap semiconductor device is useful for production of UV detectors (see Col. 3, lines 10-15). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Faatz, and provide a wide bandgap semiconductor device, as taught by Moustakas, in order to provide low noise detection. Faatz does not disclose or suggest a scintillator, which produces UV photons in response to receiving radiation from a radiation producing source. However, Bateman et al. disclose in Fig. 1, a scintillator which produces UV photons in response to receiving radiation from a radiation producing source (see Col. 1, lines 10-22), and the radiation includes at least one of gamma rays and x-rays (see Col. 2, lines 60-65). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Faatz and providing a scintillator, as taught by Bateman et al., in order to converter light source to UV photons.

As to claims 2-4, 16, Moustakas discloses the radiation detector wherein the wide bandgap semiconductor device is a SiC, GaN or AlGaN device (see Col. 3, lines 10-22), and is a photodiode, array of photodiode, or an avalanche photodiode (see Col. 14, lines 1-9).

As to claims 5-8, 12-15, Moustakas discloses the wide bandgap semiconductor device includes a bandgap greater than or equal to about 2 eV, or equal to about 3 eV (See Col. 3, lines 10-22). However, the wide bandgap semiconductor device includes a bandgap greater than or equal to about 2 eV, or equal to about 3 eV. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose appropriate range of bandgap semiconductor device for providing low noise

detection, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As to claims 9, 17, 21, Bateman et al. disclose in column 2, lines 33-40, the radiation detector, wherein the scintillator includes Li_2HfO_3 , BaF_2 , CsI , CeF_3 , LuAlO_3 :Ce³⁺, or $\text{Lu}_3\text{Al}_5\text{O}_{12}$:Pr³⁺.

As to claim 23, Faatz in view of Moustakas, and further in view of Bateman et al. disclose all limitations except for the system for measuring radiation wherein the system is incorporated into one of a medical imaging apparatus or an oil exploration drilling apparatus. However, Charpak et al. (u.s.p 6,310,352) disclose in column 1, lines 32-38, the system for measuring radiation wherein the system is incorporated into medical instrument.

5. The method is considered inherent in the structure.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung X Nguyen whose telephone number is (703) 305-3337. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703)-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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308-5841 for regular communications and (703) 308-5841 for After Final
communications.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is (703) 308-
0956.

TN

January 21, 2003



KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800